

IN THE CLAIMS

This listing of the claim will replace all prior versions and listings of claim in the present application.

Listing of Claims

Claim 1 (canceled).

2. (currently amended) A packet communication apparatus for transmitting a packet from a first network to a second network, wherein the packet includes ~~an~~ a destination Internet Protocol (IP) address, and a first header Virtual Private Network (VPN) identifier used to compose a ~~closed network~~ first VPN in the first network, said packet communication apparatus comprising:

a packet generating unit which generates a second header VPN identifier used to compose a ~~closed network~~ second VPN in the second network based on the destination IP address and ~~information in the first header~~ the first VPN identifier; and

a transmitter which transmits a packet having added thereto said second header VPN identifier,

wherein the first and second networks are networks that implement the IP.

3. (currently amended) A packet communication apparatus according to claim 2, further comprising:

a processing unit which replaces the first header VPN identifier with the second header VPN identifier.

4. (currently amended) A packet communication apparatus according to claim 2, further comprising:

a route decision processing unit which decides a route to the second network according to the destination IP address and information in the first header the first VPN identifier.

5. (previously presented) A packet communication apparatus according to claim 2, wherein the packet is an IP packet.

6. (currently amended) A packet communication method of transmitting a packet from a first network to a second network, wherein the packet includes an a destination Internet Protocol (IP) address and a first header Virtual Private Network (VPN) identifier used to compose a closed network first VPN in the first network, the packet communication method comprising the steps of:

receiving the packet; and

generating a second header VPN identifier used to compose a closed network second VPN in the second network based on the destination IP address and information in the first header the first VPN identifier,

wherein the first and second networks are networks that implement the IP.

7. (currently amended) A packet communication method according to claim 6, further comprising the step of:

replacing the first header VPN identifier with the second header VPN

identifier.

8. (currently amended) A packet communication method according to claim 6, further comprising the step of:

deciding a route to the second network according to the destination IP address and information in the first header~~the first VPN identifier~~.

9. (previously presented) A packet communication apparatus according to claim 4, wherein the packet is an IP packet.

10. (currently amended) A packet communication system comprising:

a first network;

a second network; and

a router which transmits a packet from the first network to the second network,

wherein the packet includes ~~an~~ a destination Internet Protocol (IP) address and a first header~~Virtual Private Network (VPN) identifier~~ used to compose a ~~closed network~~first VPN in the first network, and

wherein the router generates a second header~~VPN identifier~~ used to compose a ~~closed network~~second VPN in the second network based on the destination IP address and information in the first header~~the first VPN identifier~~,

wherein the first and second networks are networks that implement the IP.

11. (currently amended) A packet communication system according to claim 10, wherein the router replaces the first header VPN identifier with the second header VPN identifier.

12. (currently amended) A packet communication system according to claim 10, wherein the router decides a route to the second network according to the destination IP address and information in the first header the first VPN identifier.

13. (currently amended) A packet communication apparatus for transmitting a packet from a first network to a second network, wherein the packet includes an a destination Internet Protocol (IP) address and a first header Virtual Private Network (VPN) identifier used to compose a closed network first VPN in the first network, said packet communication apparatus comprising:

an index generating unit which generates an index based on the destination IP address and information in the first header the first VPN identifier;

a packet generating unit which generates a second header VPN identifier used to compose a closed network second VPN in the second network based on the index; and

a transmitter which transmits a packet having added thereto said second header VPN identifier,

wherein the first and second networks are networks that implement the IP.

14. (currently amended) A packet communication apparatus according to claim 13, further comprising:

a processing unit which replaces the index with the second header VPN identifier.

15. (currently amended) A packet communication apparatus according to claim 13, further comprising:

a route decision processing unit which decides a route to the second network according to the destination IP address and ~~information in the first header~~ the first VPN identifier.

16. (previously presented) A packet communication apparatus according to claim 13, wherein the packet is an IP packet.

17. (currently amended) A packet communication method of transmitting a packet from a first network to a second network, wherein the packet includes an a destination Internet Protocol (IP) address and a first header Virtual Private Network (VPN) identifier used to compose a closed network first VPN in the first network, the packet communication method comprising the steps of:

receiving the packet;

generating an index based on the destination IP address and
~~information in the first header~~the first VPN identifier; and
generating a second header VPN identifier used to compose a closed
~~network~~second VPN in the second network based on the index,
wherein the first and second networks are networks that implement the
IP.

18. (currently amended) A packet communication method
according to claim 17, further comprising the step of:

replacing the index with the second header VPN identifier.

19. (currently amended) A packet communication method
according to claim 17, further comprising the step of:

deciding a route to the second network according to the destination IP
address and ~~information in the first header~~the first VPN identifier.

Claim 20 (canceled).

21. (currently amended) A packet communication system
comprising:

a first network;

a second network; and

a router which transmits a packet from the first network to the second
network,

wherein the packet includes ~~an~~ a destination Internet Protocol (IP) address and a first header Virtual Private Network (VPN) identifier used to compose a ~~closed network~~ first VPN in the first network, and

wherein the router generates an index based on the destination IP address and ~~information in the first header~~ the first VPN identifier, and generates a second header VPN identifier used to compose a ~~closed network~~ second VPN in the second network based on the index,

wherein the first and second networks are networks that implement the IP.

22. (currently amended) A packet communication system according to claim 21, wherein the router replaces the index with the second header VPN identifier.

23. (currently amended) A packet communication system according to claim 21, wherein the router decides a route to the second network according to the destination IP address and ~~information in the first header~~ the first VPN identifier.